

AMENDMENTS TO THE CLAIMS

1-5. (Canceled)

6. (Previously presented) An isolated nucleic acid comprising the nucleotide sequence of SEQ ID NO:1.

7-42. (Canceled)

43. (Previously presented) An isolated nucleic acid comprising a nucleotide sequence coding for the amino acid sequence of SEQ ID NO:2.

44-45. (Canceled)

46. (Previously presented) An isolated nucleic acid comprising a nucleotide sequence coding for the amino acid sequence of SEQ ID NO:4.

47. (Previously presented) The isolated nucleic acid of claim 46 wherein the nucleotide sequence is that of SEQ ID NO:3.

48. (Previously presented) An isolated nucleic acid comprising a nucleotide sequence coding for the amino acid sequence of SEQ ID NO:6.

49. (Previously presented) The isolated nucleic acid according to claim 48, wherein the nucleotide sequence is the sequence of SEQ ID NO:5.

50. (Previously presented) An isolated nucleic acid comprising a nucleotide sequence coding for the amino acid sequence of SEQ ID NO: 8.

51. (Previously presented) The isolated nucleic acid according to claim 50, wherein the nucleotide sequence is the sequence of SEQ ID NO: 7.

52. (Currently amended) ~~A nucleic~~An isolated nucleic acid comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1 \rightarrow 6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3,
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
- (e) a nucleotide sequence of SEQ ID NO:5,
- (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
- (g) a nucleotide sequence of SEQ ID NO:7, and

(h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8.

53. (Currently amended) A nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(c) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and

SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:5 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(d) a nucleotide sequence obtained by amplifying via the RACE process a nucleic acid obtained from a monocotyledonous plant with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:7 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

54. (Previously presented) The isolated nucleic acid (a) according to claim 53, wherein the leguminous plant is broad bean.

55. (Previously presented) The isolated nucleic acid (b) according to claim 53, wherein the leguminous plant is soybean.

56. (Previously presented) The isolated nucleic acid (c) according to claim 53, wherein the lamiaceous plant is Japanese artichoke.

57. (Previously presented) The isolated nucleic acid (d) according to claim 53, wherein the monocotyledonous plant is a gramineous plant.

58. (Previously presented) The isolated nucleic acid according to claim 57, wherein the gramineous plant is corn.

59. (Previously presented) A chimeric gene comprising a nucleic acid comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3,
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
- (e) a nucleotide sequence of SEQ ID NO:5,
- (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
- (g) a nucleotide sequence of SEQ ID NO:7, and
- (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8;

and a promoter operatively linked thereto.

60. (Previously presented) The chimeric gene of claim 59, in which the promoter is selected from the group consisting of a promoter functional in *E. coli*, a yeast alcohol dehydrogenase promoter, an adenovirus major late promoter, an SV40 early promoter, a baculovirus promoter, a nopaline synthase promoter, an octopine synthase promoter, a cauliflower mosaic virus 19S

promoter, a cauliflower mosaic virus 35S promoter, a phenylalanine-amino lyase promoter, a chalcone synthase promoter, a glycinin promoter and a pathogenesis-related protein promoter.

61. (Currently amended) A chimeric gene comprising a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(c) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:5 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(d) a nucleotide sequence obtained by amplifying via the RACE process a nucleic acid obtained from a monocotyledonous plant with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:7 in 0.9 M NaCl, 0.09 M citric acid at 65°C;

and a promoter operatively linked thereto.

62. (Previously presented) The chimeric gene of claim 61, in which the promoter is selected from the group consisting of a promoter functional in *E. coli*, a yeast alcohol dehydrogenase promoter, an adenovirus major late promoter, an SV40 early promoter, a baculovirus promoter, a nopaline synthase promoter, an octopine synthase promoter, a cauliflower mosaic virus 19S promoter, a cauliflower mosaic virus 35S promoter, a phenylalanine-amino lyase promoter, a chalcone synthase promoter, a glycinin promoter and a pathogenesis-related protein promoter.

63. (Previously presented) A transformant obtained by introducing the chimeric gene of claim 59 into a host organism.

64. (Previously presented) A transformant obtained by introducing the chimeric gene of claim 61 into a host organism.

65. (Previously presented) A plasmid comprising a nucleic acid comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3,
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
- (e) a nucleotide sequence of SEQ ID NO:5,
- (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
- (g) a nucleotide sequence of SEQ ID NO:7, and
- (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8.

66. (Previously presented) A plasmid comprising a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(c) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:5 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(d) a nucleotide sequence obtained by amplifying via the RACE process a nucleic acid obtained from a monocotyledonous plant with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence hybridizes with a nucleotide

sequence complementary to the nucleotide sequence of SEQ ID NO:7 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

67. (Previously presented) A host organism transformed with the plasmid of claim 65, or a cell thereof.

68. (Previously presented) The host organism of claim 67 that is a microorganism.

69. (Previously presented) A plant transformed with the plasmid of claim 65, or a cell thereof.

70. (Previously presented) A host organism transformed with the plasmid of claim 66, or a cell thereof.

71. (Previously presented) The host organism of claim 70 that is a microorganism.

72. (Previously presented) A plant transformed with the plasmid of claim 66, or a cell thereof.

73. (Currently amended) A method for metabolic modification, which comprises introducing a nucleic acid comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose

molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3,
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4,
- (e) a nucleotide sequence of SEQ ID NO:5,
- (f) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:6,
- (g) a nucleotide sequence of SEQ ID NO:7, and
- (h) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:8,
into a host organism or a cell thereof, so that the content of raffinose family oligosaccharides
in the host organism or the cell thereof is changed.

74. (Previously presented) A method for metabolic modification, which comprises introducing a nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1 \rightarrow 6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer

selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(c) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a lamiaceous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:5 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(d) a nucleotide sequence obtained by amplifying via the RACE process from a nucleic acid obtained from a monocotyledon with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:7 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

into a host organism or a cell thereof, so that the content of raffinose family oligosaccharides in the host organism or the cell thereof is changed.

75. (Previously presented) An isolated nucleic acid comprising (i) a polynucleotide having a sequence that encodes a protein having an amino acid sequence selected from the group consisting of SEQ ID NOs: 2, 4, 6, or 8 or (ii) a polynucleotide having a sequence complementary to said sequence.

76. (Previously presented) An isolated nucleic acid comprising (i) a polynucleotide having a nucleotide sequence selected from the group consisting of SEQ ID NOs: 1, 3, 5, or 7 or (ii) a polynucleotide having a sequence complementary to said sequence.

77. (Previously presented) A nucleic acid isolated from a plant comprising a nucleotide sequence coding for an amino acid sequence of a protein which produces raffinose by combining a D-galactosyl group through an $\alpha(1\rightarrow6)$ bond with a hydroxyl group attached to the carbon atom at position 6 of a D-glucose residue in a sucrose molecule, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from broad bean with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, and SEQ ID NO:58 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:17, and SEQ ID NO:53, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from soybean with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12, SEQ ID

NO:19, SEQ ID NO:65, and SEQ ID NO:68 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:21, and SEQ ID NO:70, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C,

(c) a nucleotide sequence obtained by amplifying a nucleic acid obtained from Japanese artichoke with a combination of a PCR primer selected from the group consisting of SEQ ID NO:71 and SEQ ID NO:73 and a PCR primer selected from the group consisting of SEQ ID NO:72 and SEQ ID NO:74, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:5, in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(d) a nucleotide sequence obtained by amplifying via the RACE process from a nucleic acid obtained from corn with a PCR primer selected from the group consisting of SEQ ID NO:77 and SEQ ID NO:78, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:7 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

78. (New) The nucleic acid according to claim 52, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3, and
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4.

79. (New) The chimeric gene according to claim 59, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3, and
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4.

80. (New) The plasmid according to claim 65, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO: 1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3, and
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO;4.

81. (New) The method for metabolic modification according to claim 73, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence of SEQ ID NO:1,
- (b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2,
- (c) a nucleotide sequence of SEQ ID NO:3, and
- (d) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:4.

82. (New) The isolated nucleic acid according to claim 53, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9 and SEQ ID NO:15 and a PCR primer selected from the group consisting of SEQ ID NO: 10, SEQ ID NO:11, and SEQ ID NO:17, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and
- (b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO: 12 and SEQ ID NO:19 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:21, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

83. (New) The chimeric gene according to claim 61, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

- (a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9 and SEQ ID NO:15 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, and SEQ ID NO:17, wherein said nucleotide sequence hybridizes with a

nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12 and SEQ ID NO:19 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:21, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

84. (New) The plasmid according to claim 66, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9 and SEQ ID NO:15 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, and SEQ ID NO:17, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12 and SEQ ID NO:19 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:21, wherein said nucleotide sequence hybridizes with a

nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

85. (New) The method for metabolic modification according to claim 74, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9 and SEQ ID NO:15 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, and SEQ ID NO:17, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from a leguminous plant with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12 and SEQ ID NO:19 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:21, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 0.09 M citric acid at 65°C.

86. (New) The isolated nucleic acid according to claim 77, wherein said nucleotide sequence comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence obtained by amplifying a nucleic acid obtained from broad bean with a combination of a PCR primer selected from the group consisting of SEQ ID NO:9

and SEQ ID NO:15 and a PCR primer selected from the group consisting of SEQ ID NO:10, SEQ ID NO:11, and SEQ ID NO:17, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:1 in 0.9 M NaCl, 0.09 M citric acid at 65°C, and

(b) a nucleotide sequence obtained by amplifying a nucleic acid obtained from soybean with a combination of a PCR primer selected from the group consisting of SEQ ID NO:12 and SEQ ID NO:19 and a PCR primer selected from the group consisting of SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:21, wherein said nucleotide sequence hybridizes with a nucleotide sequence complementary to the nucleotide sequence of SEQ ID NO:3 in 0.9 M NaCl, 4.09 M citric acid at 65°C.